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ABSTRACT

This paper suggests that language study focus its attention more on the pedagogical needs of educators by offering them a more comprehensive dialectical and unifying theory of language development that could then present the process as a holistic endeavor instead of as a set of separate linguistic acquisitions. Specifically, it suggests the use and application of Jean Piaget's cognitive dialectic theory of development (equilibration theory) or a similar one, for general heuristic language development purposes and as a unifying theory for language development. The paper contains two major sections. The first offers a brief and general neo-Piagetian interpretation of equilibration theory that is still taking form. The second presents a particular interpretation of language development first from a dialectical viewpoint and then as a progressive equilibration. (FL)

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JEAN PIAGET'S THEORY OF EQUILIBRATION APPLIED TO LANGUAGE DEVELOPMENT

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I. INTRODUCTION

The purpose of this paper is to suggest the exploration, study, and analysis of language development from the equilibration theory point of view of Jean Piaget.

At the outset it is necessary to state that the ideas set forth in this paper are not, in any way, the ideas of a recognized authority in either the equilibration or language field of study--both of which are formidable and considerable areas of analysis. The ideas in this presentation are basically a neo-Piagetian educator's interpretations and suggestions, most probably fraught with many gaps. It is hoped that the gaps may point us in some good directions for further pedagogical language study.

The main task of an educator is abstracting the pedagogical "gold" from basic knowledge of the social sciences. From Jean Piaget's work much pedagogy has been abstracted--some of the most promising of which comes from his theory of equilibration. The study of language too, of course, has yielded some important pedagogical implications, especially from the modern linguistic views such as transformational grammar. However, in reviewing

the language development literature, an educator finds various gaps or lack of emphasis areas: 1) The study of language focuses on the language scholars' needs and only secondarily on the pedagogical needs of people concerned with "language developing in a wholistic organism--the child"; 2) The study of language (and its many detailed subsystems) proposes no formal unifying theory for its development; 3) The emphasis of a dialectical theory of language development is only recently in the western world (the Soviet language scholars being earlier in this); and 4) The study of language shows a lack of a concerted effort to tackle the dual or multi-language developmental processes. Where there has been some attention to this area many have "mis-applied" a monolingual model of understanding to explain a multi-lingual aspect.

There are probably many reasons for the above occurrences one of which could be that educators have not looked in the right places and/or with the proper mental structure. However, some of the reasons may lie in the manner in which some scholars of language have gone about studying it.

This paper's general suggestion is that language study focus its attention a bit more to the pedagogical needs of educators by offering them a more comprehensive dialectical and unifying theory of language development which could then probably present the process as a more holistic

endeavor instead of what appears as a set of separate linguistic acquisitions.

The present paper's particular suggestion is the use and application of Jean Piaget's cognitive dialectic theory of development--equilibration theory, or at least a similar one, for general heuristic language development purposes, and as a unifying theory for language development.

It is probably true to an extent that many (including Piaget) have been preoccupied with what Sullivan (1977) calls "epistemological categories" which may well "lock us into a specific direction that may have unintended consequences (p. 16)." For Piaget these "epistemological categories" and their "intented" consequences are what dominate his general theory but they were most assuredly by choice considering that he'd have only one lifetime for focusing on many things. The rest of us can choose to study the less specifically epistemological aspects of development such as the affective dimensions. Also in Piaget's theory there is enough room for emphasizing the dialectical aspects of language in particular if one chooses. The emphasis on the cognitive basis for language development has dominated most of the research where Piaget and language have been a concern. Most everyone now agrees that language develops under the influence of a logical mathematical framework level. The unintended consequences here was that the relationship was not pushed far enough. Language develops under the primary influence of the particular

level of the cognitive framework in operation yes, but cognitive frameworks themselves presuppose (among other things) a social dialectical framework, which in turn presupposes an equilibration process. The cyclic relationship between language and the equilibration factor is a fairly new and roundabout way too probably, of studying language but it seems to this author that this offers a chance to stand back a bit and get a panoramic view of this particular type of development again. Roberta Corrigan (1979) suggests (for many good reasons) alternative approaches moving beyond the traditional Piagetian approach to study the complex relationship between language and cognition. This paper suggests that before we leave Piaget and language we should try one more look--this time borrowing developmental concepts from his equilibration theory.

An assumption of this paper is that Piaget's equilibration theory is general and dialectic enough to apply it to any developing subsystem and therefore to language development. Language is a more/less autonomous system/process functionally related to other more/less autonomous systems or subsystems. In this sense then it must undergo the three main types of equilibrations posited by Piaget (in Appel and Goldberg, 1977):

a. Assimilation/accommodation of itself.

b. Ass/acc of itself with other systems.

c. Ass/Acc of itself with the whole system (p.11).

The paper will attempt the following:

a. A brief and very general neo-Piagetian interpretation of equilibration theory which is new to many of us and is therefore still taking form.

b A particular interpretation of language development from a dialectical viewpoint first and then as a progressive equilibration.

II. EQUILIBRATION THEORY (A VERY GENERAL INTERPRETATION)

One of the after-effects (and everyone knows by now that there are several) of having studied (Chavez, 1978) any part of Piaget's massive theory is that not only is the discovery and construction of his ideas challenging, but afterwards the ideas themselves are powerful and forceful ones leaving the student very little choice as to abandoning them or forgetting them. They remain there waiting to be explored further. Equilibration is such an idea. But, as Sigel (1968) asks very importantly of equilibration: "How does one study this type of holistic proposition?" (p. 507). One studies Piaget's holistic notion not only very seriously but also conservatively and with an intuitive sense that it is the most principle and important aspect in his developmental theory. And, although the study of Piaget's notions are serious pursuits they are also enjoyable "play" and "imitation."

Most of Piaget's notions are dialectic and holistic ones which for us it means that one cannot define them simplistically (isolated from other related concepts). For many the most encompassing of Piaget's notions probably <u>is</u> equilibration.

Most reactions to the equilibration notion are varied. Some may state that it is not well-defined and understood so we should not use it. Some may claim that it was noticed as more emphasis (even reification at times) was placed on the other part of his theory--that of stages and their invariant sequence. Some might explain that the notion is too global, too general, useless, even for heuristic purposes. And then there are those of us who boldly (but humbly) deal with it more or less "head-on."

In Piaget's (1971) view of organic and cognitive development a key factor which oeprates is equilibration along with the genetic and environmental ones. Piaget views equilibration as a psychobiological factor which is imperative and operative for the maintenance and development of from the most simple to the most complex organic and mental systems which figure or are characteristic of living organisms. The equilibration principle governs the construction, reconstruction, and coordination and integrity of total systems and their specific subsystems by measuring the feedback and anticipating the feedforward ailment/information which will/will not have relevance for the organism's integral system.

Piaget in Appel (1977) states:

> ...since we already have two other factors, there must be some coordination among them. This coordination is a kind of equilibration. Secondly, in the construction of any operational

> or preoperational structure, a subject goes through much trial and error and many regulations that in a large part involve self-regulations. Self-regulations are the very nature of equilibration. These self-regulations come into play at all levels of cognition, including the very lowest level of perception (p. 10)

According to Jean Piaget (1971) there are in a living organism two characteristic but opposing forces within it--one of preservation and one of transformation--which of necessity give rise to a principle third force--one of equilibration. The three forces make up the total living system. Equilibration keeps the organism (as a total living system with different but related subsystems) in a more/less state of balance/integrity in/within its environment (internal/external). The organism/environment unit defines an "open system," a "dialectic" state of affairs.

The equilibration factor reconciles the effects of the other two forces which pose a danger to the system--that of stagnation on the one hand and that of too much transformation on the other. The equilibration function has the best interests in mind for the living organism--it delays or attempts to delay atrophy of the system. Similarly it has the best interests in mind for the organism's different but related subsystems, such as the organic and cognitive ones (perceptual/physiological, affective/social).

Piaget in Appel (1977) states: "The relationship can also be described as circular, which again poses the problem of equilibrium, and equilibrium between external information serving as the stimulus and the subject's schemes or the internal structure of his activities (p. 5)."

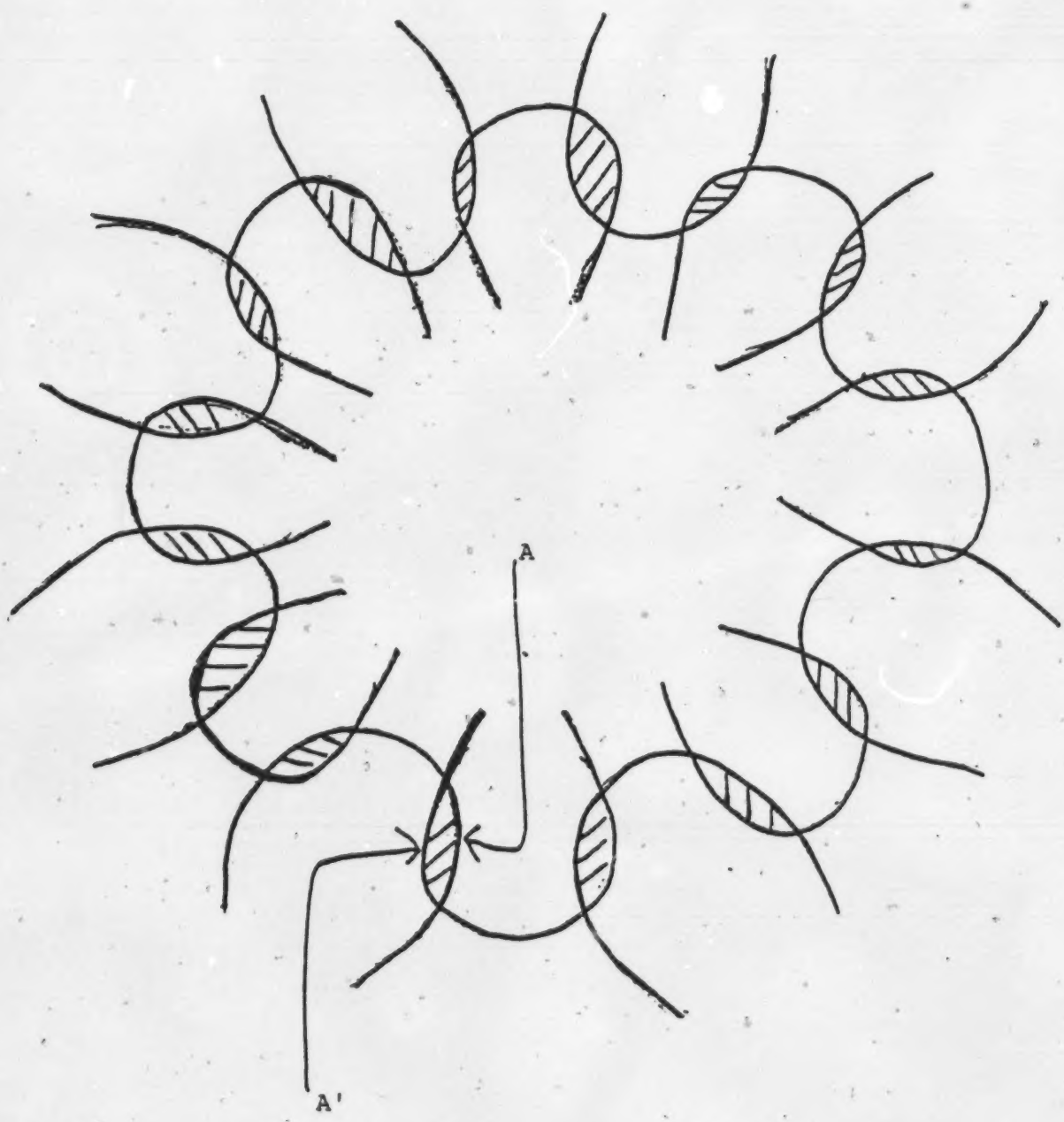
Piaget (Appel & Goldberg, 1977) explains the interaction of the living system and/with its environment thusly:

> In biological or cognitive equilibrium, on the other hand, we have a system in which all parts are interdependent. It is a system that should be represented in the form of a cycle. A has its influence on B, which has its influence on C, which has its influence on D, which again influences A. It is a cycle of interactions among the different elements. It also has a special feature of being open to influences from the outside. Each of the elements can interact with external objects. For instance, the cycle can take in A' and B'.
>
> In the case of biological or cognitive equilibrium, the links are not passive; they are the very sources of action...it presents a cohesive force that is specific ..... This seems to me a very fine example of the kind of equilibrium about which I am talking; the totality has its own cohesion and equilibrium by integrating and differentiating the parts at the same time (p. 13).

A visual model of the above explanation is offered here (see page 10) to help clarify Piaget's definition of a living more/less open system.

Life regulates the intelligence--the intelligence regulates life. Language is an aspect of the general

Piaget's
Interdependent System
(A Representation)
By L. Chávez



intelligence helping it regulate life, and life and the intelligence regulating it. Presseisen (1972) quotes Inhelder as noting that "Piaget's research has sought to uncover the laws by which knowledge develops and changes. In this inquiry, Piaget made two assumptions" first, he assumed that there are such laws and, second, he expected that the laws develop by means of orderly process (p. 2)." Equilibration is an orderly process.

Flavell (1963) states that equilibrium is the "very general, stage-independent aspect of Piaget's theory (p. 237)."

It is a probabilistic model of development. The preceding stage renders the succeeding stage more probable. Although it is a continuous and homeostatic process acting synchronously, it is also a discontinuous and homeorhetic cognitive process working diachronically over-time and constructing hierarchically vertical and horizontal stages.

Inhelder identifies four successive steps in the progressive equilibration: juxtaposition, opposition, compromise and integration.

Piaget (Appel & Goldberg, 1977) suggests "three types of equilibrations: 1) the relationship between assimilation and accommodation; 2) the coordination of conflict among subsystems; and 3) the differentiation and integration of part to whole knowledge (p. 11)."

Piaget posits this equilibration factor mainly for cognitively developing systems but he might also posit it for any type of developing living system or subsystem.

The decision to take a risk to equilibrate for a certain encounter is a function of three schemas:

a. The available capacity or in other words, the capacity constructed so far.

b. The available motivation or in other words, the motivation so far.

c. The available amount of "trust" or "value judgement" (how much fixation/energy expended; how necessary this is in the subject's world; a choice to equilibrate or not!).

Or to summarize:

The amount of total conscious and subconscious knowledge of progressive, regressive or status-quo maintenance value that the probable equilibration will have for the person deciding.

The decision to equilibrate in a particular manner is a function of the present individual and cultural status of the mental structure.

Some of the probable successive and/or simultaneous occurrences/steps in the process of equilibration might be as follows:

1. Function
2. Structure
3. Recognition
4. Intrusion/protrusion/information/aliment
5. Conflict/contradiction/match-mismatch
6. Disequilibrium
7. Equilibration attempt
8. Assimilation/accommodation

9. Use of feedback
10. Feedforward strategies
11. Hypothesis testing
12. Trial/error
13. Result
14. Change
15. Reorganization
16. Certainty/adaptation
17. Refined structure
18. Refined function

For 19. Same/similar tasks and until new intrusions, etc; and
20. Process begins again

Or

16. Uncertainty - back to steps
7-15 - Equilibration attempt continues until
16. Some certainty reached

This dialectic process is assumed for any and all developing systems and sub-systems, and therefore for the linguistic system.

Reigel (1975) accuses Piaget of not being dialectic enough and paying little attention to social interactions. This does not, however, render Piaget's theory un-dialectical. It means only that Piaget has applied the dialectical notion more to general intellectual types of knowledge and more to a specific type of knowledge, abstract logical development, than to other types including social ones. Other Genevans are probably focusing on these.

Furth (Appel & Goldberg, 1977) states the following:

> In general, you must have noticed that Piaget's theory is full of what can be called dialectical terms; assimilation versus accommodation, organism versus environment, operative versus figurative

> and so on. Because of this bipolarity, the equilibration concept seems natural and almost necessary (p. 15).

In fact, in Reigel's (1975) discussion of what constitutes dialectical interpretations ones gets the strong feeling that it is Piaget talking but with a different ideolectical vocabulary. Note the following statements by Reigel (1975):

> A dialectical theory seeks to understand the changing individual in a changing social world.... In particular, a dialectical theory must pay attention to the interdependence of short-term and long-term changes, i.e., to the influence they exert upon each other (p. 50) (Reigel, 1975).
>
> Development represents the coordination or synchronization of any two, and ultimately, of all of these progressions (p. 51).
>
> ...parts of interconnected system of relationships (p. 51).
>
> Development requires a delicate synchrony between different progressions. Synchronization is comparable to balance, but it is a balance in change which requires continuous efforts, and actions within the various dimensions interacting in developmental progressions (p. 63).
>
> In applying the notion of dialectical operations to the present interpretations, the individual becomes not only able to tolerate contradictions in different developmental progressions, i.e., those that are brought about by lack of coordination, but he seeks these contrastive confrontations and accepts them as the basis for all development and operations (p. 61).

The relationship to Piaget is notable.

Since partial isomorphisms are a Piagetian strategy, this paper too will submit the equilibration process as a way of showing a partial analogy of development between cognitive and general linguistic systems.

It also makes the assumption that Piaget's equilibration theory is a particular dialectic theory which could be borrowed and used to explain language development as a dialectic in social interactions.

III. LANGUAGE DEVELOPMENT

DIALECTIC EXPLANATIONS

The new views of language stress a dialectical interpretation . A relational view of man equilibrating his language as he places himself in a social unit which presents disequilibrium/contradiction which is necessary for a) general thinking development; b) social growth, and in particular for c) linguistic growth. An internal/external polarity factor is established wherein a balance or equilibration becomes a primary process.

Tripp (in Moore, 1973) stressed the meaningful environmental input as one of the prerequisite factors along with internal ones, for lanauge learning in the first years. However, a dialectical emphasis interpretation of language development (wherein the external forces are given equal status with the internal ones) has only recently been advanced (Reigel, 1977; Harris, 1975) here in the United States. Soviet studies are much earlier in this respect (Wozniak, 1972).

Language study now focuses on the total living organism/environment/interaction unit--on an "open system" or a dialectic situation.

Lewis (1977) states:

> Phenomenology, on the other hand, immediately institutes a dialectic to bring the diachronic and synchronic views into communication. By transversal cross-section, the latter envelops the former, placing the series of fortuitous linguistic facts within a system of internal development. By longitudinal cross-section, the diachronic envelops the synchronic--the synchronic system contains at every moment openings in which the crude linguistic event can intrude. Hence, a double task is conceived: find a meaning in the development of language, conceived as an equilibrium in movement, and recognize the changes that are latent or incubating.... (Lewis, 1977, p. 68).

Reigel (1977) states "that especially important for a dialectical interpretation are the first concrete expressions of interactions in the form of social dialogues (Freedle, p. 60)."

Reigel (1977) also goes on to say that "The dialogue is a basis for language development (p. 61)."

According to Gusdorf (1977), "The unit of speech is a complex whole, given vitality by the intended meaning of the speaker: it is the verbal image that is expressed in more/less complex sentences, sometimes reduced to a single word, but always corresponding to the expression of a meaning (p. 47)."

The social (and usually polar) unit is the beginning language development context. It is an open system dealing now with intrusion/contradiction/disequilibrium and seeking meaning/coherence. The process it will undergo will be an equilibration process.

Harris (1975) states that social practice is the source of knowledge (p. 84).

Harris (1975) also states:

> ...input from two dynamically conceived subject, who are their own and each other's object, will have determining force on the development of language. Linguistic structures are strictly speaking the synthesis of this interaction of speaker/listener (p. 84).

Nystrand (1977) notes that the speaker/listener each may be looked on as an essential participant in a fluid, ongoing process of development involving a personal commitment and tension between individual and world... experience is conceived as a spiral, regulated by the need for order and the potential for the equilibrium of a coherent, open, and reversible system (p. 9).

Lewis (1977 in Nystrand) quotes Plerleau-Ponty who recognizes as an ultimate fact this open and indefinite power to give meaning (signifier), i.e., simultaneously to seize and to communicate to meaning (sens), a power by which man transcends himself toward a new behavior, or toward other people, or toward his own thought through his body and his parole (p. 63).

Gusdorf (1977) says that living speech acknowledges the requirements of the spiritual life in travail--not at all a closed system achieved once and for all--but an effort of constant regeneration (p. 52).

And Harris (1975) again states:

> Knowledge about our language (internalized action) must arise out of participation in material activity, mediated through social activity... dialogue of mother/child is treated as an open system...rather the two communicators are bound in an open system which is both maintained as a steady state and is itself regulatory (p. 80-83).

Harris (1975) talks of the interaction of mother and child as being intricate, intense and mutually regulating (p. 80).

Tanier (1979) discusses the "mutual phasing between caretaker and infant," "topic-comment dialogue," structure and elaboration by caretaker and adult which are prominent now in language development research (p. 263).

Tanier (1979) states:

> Specifically, there initially appears to be a biologically regulated cycle of attention and withdrawal of attention to social stimuli (in most cases, the mother) which is different from responses toward objects by the infant (p. 264).

This is related to Vygotsky's idea that cognitive and language processes arise through the internalization of social interactions/patterns (Harris, 1975, p. 85-86). This is related to various other Soviet dialectic interpretations.

EQUILIBRATION INTERPRETATION

Harris (1975) warns that to write of diachronic processes is difficult, and that the current movement around dialectics is one attempt to struggle with and integrate these questions (p. 93-94).

She mentions also that negotiating the interface between the disciplines is always hazardous, particularly that between developmental psychology and linguistics (Harris, 1975, p. 92).

Harris (1975) suggests studying and using linguistic models which have assumptions epistemologically compatible with psychology such as stratificational or Firthian linguistics (p. 92).

With this caveat and with the general help of dialectic explanations at this point it becomes possible to begin to relate language to a particular dialectic notion--equilibration theory.

The points at which language relates to equilibration are five general ones:

1. The first point is when one posits language as a relatively "open sub-system," wherein an external/internal polarity will require a third factor of equilibration.

2. The second point is when one sees language as a system which assimilates "aliment" unto itself and accommodates itself to "aliment" demands.

3. The third point of parallel is if we view afortiori the development of language as a chreod bringing itself back on course, or an alternative one, through a homeorhetic process of regulation/equilibration when something has obstructed its necessary route or goal of development.

4. The fourth juncture point is when we see the necessity of a coordination between the language system with other subsystems and with the total whole.

And lastly one could add a fifth point where language even becomes one of the many mechanisms of general equilibration--a regulatory instrument in the sense of Halliday's (1973) language functions.

Language then is seen as an "open living system"--a social one at that. As such it must maintain that system within itself and with other systems, as well as take itself to progression. Whether the progression is more continuous or more discontinuous remains as another research task. In any case the bipolarity is established wherein a third factor, equilibration, is then operating five times. (It is assumed here that language systems, like all living systems, do tend toward increasing progression and toward decreasing entropy).

Language and its relationship to cognition must be seen firstly through the filter of equilibration.

Language can also then be defined as a progressive equilibration.

The implications for language development is that of a progressive interchange/development in a holistic individual attempting to stay integral as it is differentiating its many parts during interactions with its sometimes hostile, sometimes enhancing ambiente through a process of self-regulation. This it does as it equilibrates and constructs its linguistic knowledge.

SUMMARY

To represent or symbolize to ourselves is a very abstract task. To construct a code or two which will serve as a sign for our representations is also a very abstract task. The coordination of symbol with personal and with conventional signs(s) is a very abstract task. Yet children do these symbolic feats pretty well by age two. They must because one of the human essences is to think and to communicate which are an individual and a mutual experience respectively and also simultaneously.

In one sense there are operations and in another there are "co-operations." Both of these, in order to reach the most human form, will require social interaction. In this social dimension some sort of language will be constructed and elaborated--the most average and universal type of which is verbal-phonological speech.

It appears that language is a particular type of progressive self-equilibration. This equilibrated system can help regulate other than non-linguistic systems. Reciprocally non-linguistic systems help regulate language. And both linguistic and non-linguistic systems regulate the total organism both inwardly and outwardly. Like cognition, language, in order to reach its highest

equilibrated forms, will require a physical and social interaction in order to build even more general mental/social structures which are then most probably logico-mathematical as well as metaphorical in nature in order to make a more/less complete construction/knowledge of that personal and cultural world.

This whole paper's idea might have been as Nystrand (1977) says "an exercise on the heuristic use of language--verbal manifestation of a dominance of right hemisphere over left." The next paper will attempt to deal with the verbal manifestations of the left hemisphere in order to not only fill in the gaps with some answers but more importantly first to ask some better questions on the relationship of language, cognition, and equilibration or other dialectic theories.

And lastly the major pedagogical implications from equilibration theory which have been stated elsewhere by others and by Chavez (1978) in general, can then be applied to language development in particular.

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